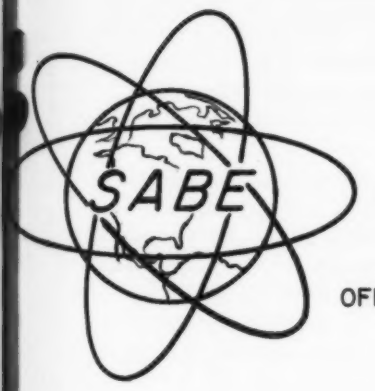

DATA PROCESSOR

FOR BETTER BUSINESS EDUCATION

OFFICIAL JOURNAL OF THE SOCIETY FOR AUTOMATION IN BUSINESS EDUCATION

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AUTOMATION REFERENCE AND RESEARCH

Automation Research

Kalman J. Cohen, COMPUTER MODELS OF THE SHOE, LEATHER, HIDE SEQUENCE. Doctorate, Graduate School of Industrial Administration, Carnegie Institute of Technology, 1959. Subsidized by the Ford Foundation and published by Prentice-Hall; $1 to teachers, students, or school libraries.

Author E. Hughes, Jr., DATA-PROCESSING SYSTEMS: AN ANALYSIS OF THEIR NATURE AND FUNCTION IN BUSINESS ORGANIZATIONS. PhD, State University of Iowa, 1960. Updating of previous entry.

George Jordan, A SURVEY OF PUNCHED CARD DEVELOPMENT. Master's, School of Industrial Management, Massachusetts Institute of Technology, 1956.

Peter B. Laubach, COMPANY INVESTIGATIONS OF AUTOMATIC DATA PROCESSING. Graduate School of Business Administration, Harvard University, Boston, 1957, 258 pp. It is not known to the editor whether this is or is not a thesis or dissertation.

Maurice F. Ronayne, CENTRAL GOVERNMENT ORGANIZATIONS AND ADP. PhD (in progress), The American University, Washington, D. C.

Fred M. Tonge, A HEURISTIC PROGRAM FOR ASSEMBLY LINE BALANCING. Doctorate, Graduate School of Industrial Administration, Carnegie Institute of Technology, 1960. Winner of Ford Foundation competition and available for $1--see entry for Cohen above.

THE SABE JOURNAL IS PUBLISHED MONTHLY DURING THE ACADEMIC YEAR BY THE SOCIETY FOR AUTOMATION IN BUSINESS EDUCATION. ADDRESS ALL CORRESPONDENCE TO: DR. E. DANA GIBSON, PRESIDENT, PROFESSOR OF OFFICE MANAGEMENT, SAN DIEGO STATE COLLEGE, SAN DIEGO 15, CALIFORNIA. MEMBERSHIP DUES IN THE SOCIETY ARE $2 YR.

Services

The Association of Data Processing Service Organizations
by W. H. Evans, Executive Vice President

Just as this decade came into being, a new body, the "Association of Data Processing Service Organizations," also came into existence. "ADAPSO," as the group is known for brevity, and with the addition of a single letter for euphony, is so new that its objectives, membership eligibility requirements, and its form of operation are only now taking shape. In time it is expected that the group will enlist members from all parts of the world; for the present, some thirty American and Canadian companies constitute its roster. Eventually, as the organization develops one service and then another, it is to be expected that upwards of three-hundred companies, including branches, will enroll. Obviously, growth is dependent upon the nature and quality of services offered, and, perhaps to a lesser extent, upon the publicity which attends its efforts.

The objectives of the group might be summarized as follows:

1 To create a public impression of dignity, reliability and complete trust.

2 To develop in its members an awareness of business ethics.

3 To develop a set of performance standards which every service center will strive to achieve.

4 To provide for an exchange of management ideas which will be beneficial to members and, through them, to their employees and clients.

In a sense, these might be considered as the "idealistic objectives" toward which the group will direct its efforts.

Among the more difficult aspects of the Association's early days, has been that of determination of its membership eligibility concepts. However, all are now in accord that this is an association of companies, and not of individuals. Yet no association can become operative unless it is sparked with an enthusiastic will-to-do. This enthusiasm must be provided by individuals. Thus each firm is represented by a high-level executive in the fields of general or sales management.

At this point it should be noted that there are provisions for four types of companies:

1 Independent data processors
2 Chains of data processing organizations
3 Manufacturers' service centers
4 Other and related firms

Thus, there are three types of membership. They are respectively called Corporate, Branch, and Associate. The Corporate is the only one which carries the privilege of voting, and only Corporate representatives may hold office. The Branch classification makes provision for the local offices of multiple office operations. Finally, the Associate category makes provision for companies whose work is related to data processing but which do not themselves actually perform data processing services for clients.

Perhaps at some later date there will be provision for additional representatives from the same office, but at the present time there can be only one representative of each establishment.

In retrospect, the most difficult period through which the Association passed was that in which eligibility requirements were established and defined. The mere definition of the phrase, "data processing," presents difficulties in itself. The solution was achieved by recognizing tabulating and computing, the basic methods of data processing, as our chief concern.

The initial phase of membership delineation involved the term, "for profit." It was thought that only so-called commercial processors might be included as members, since the admission of those representing non-profit institutions would tend to diffuse the emphasis on the major objectives. At another time only companies owning and utilizing their own equipment were considered proper affiliates. In reality, the Associate membership class was established to accomodate those whose status would otherwise have been questionable.

Of course, the problem arises as to types of service and the way in which the Association will undertake to render assistance to its members. While new projects seem continuously to present themselves, certain of them seem to offer more obvious opportunities.

Since the beginning of this year, two management symposia have convened. The first of these took place in New York City in January, and the second in St. Louis in May. The third took place in Los Angeles October 16 and 17, and the fourth and fifth will take place in New York City in February and in Chicago in May. At these symposia the more or less formal presentations are held to a minimum. In effect, the speakers become "thought starters." In the discussion period following, the members and guests express their own opinions, usually without reservation, and query their fellow-participants as to procedures, processes, and other business interests.

The usefulness of such exchanges can hardly be overvalued. They are the heart of the service the Association hopes to perform. Each presentation and each discussion period is reported by stenographers, the transcript edited, and finally issued to those attending in printed form, or to members who, because of distance, did not find it possible to be present. These printed symposia proceedings thus become the basis of a whole new field of management literature--and the emergence of management literature is the first sign of business maturity.

Note particularly that members are not expected to travel across two countries to attend symposia. It is the eventual purpose to divide Canada and the United States into four geographic regions, and to offer two symposia, perhaps at six-month intervals, in each region, on the theory that the symposia should go to the members. Note also that the printed proceedings serve the additional function of transporting the symposia, as it were, to members everywhere.

Currently, an ADAPSO Committee is engaged in formulating a code of ethics. It is not expected that such a code will straight-jacket members, or pour them into a mould of conformity. It is hoped, rather, that the code will tend to develop an awareness of high moral standards which the owners and managers of service centers can apply in day-to-day dealings with fellow-owners, employees, and clients. It is doubtful that the code will ever be interpreted as being in the nature of rules or regulations, and it is even more inconceivable that any official body within the organization will ever

be established to pass judgment on the conduct of members, or to take punitive action.

Already, the Association has begun to serve as a clearing house in the field. Certain members have indicated their desire to invest in bureaus in various parts of the two countries, while others have reported a desire to sell; prospective clients have requested lists of service bureaus in given areas, or have outlined problems and requested names of companies to solve their problems. This will become an even more important function as the years go by.

Surely, too, as new needs arise, there will be efforts at research on problems that are common to all. At times this research will take the simple form of fact-finding; at other times controlled experiments in data processing will be conducted in order to determine scientifically best procedures or applications.

As membership confidence grows, certain companies will call upon their competitors and fellow-members for assistance in handling overloads of work or perhaps to render services in which they have come to specialize, either through a peculiar knowledge, or because of the adaptability of certain equipment.

In times of emergency arising from a possible breakdown of equipment or from national disasters, or even in the event of enemy attack, the existence of the Association will justify, many times over, the early efforts required to make it a living, functioning organization.

There are also problems arising from the relationship of data processors to other groups: What, for instance, should be the proper relationship between the public accountant and the service center operator? What relationship should exist between the operator and the engineer, or perhaps with the members of the bar? Many interesting aspects of service center management present themselves here.

More than likely you who peruse this short article will do so with only an academic interest in the subject. You may be assured, however, that as ADAPSO becomes strong and active it will want to be of service to you in every possible way. There may be a university service center division. But for the present, that service must be limited. Nevertheless, ADAPSO solicits your interest, and where you can offer it, your support. If, by chance, your interest is more practical than academic because of some relationship you might experience, perhaps you would enjoy associate membership. If you wish, you may make inquiry at the Association's headquarters, 1000 Highland Avenue, Abington, Pa., or at the offices of any member.

AUTOMATION AND EDUCATION

Weekly Lectures for Business Machines Classes

Following is the sixth in the series of weekly lectures for business machines classes. The first five lectures appeared in Volume 1 of the SABE DATA PROCESSOR.

Business teachers can use the ideas expressed in these lectures in many classes other than machines classes. The ideas are applicable to any business situation in which a system-machine relationship exists.

6. Bookkeeping Machines Systems Relationship

by E. Dana Gibson, Professor of Office Management, San Diego State College

Probably the first systems machine was a bookkeeping-billing machine. Some one decided that a machine might just as well do several postings at one time. This decision probably grew from many attempts to use carbon paper to cut down on copying time. The first machines were crude affairs but as time passed they became easier to use and more automatic as additional features were added. A one total machine was soon found inadequate for most jobs so additional totals were added, as were automatic carriage movement, automatic return, front insertion of forms, and many other features. It was not long before bookkeeping machines had turned into accounting machines. Just where this happened is anyone's guess. But to distinguish between the two will require a definition of both.

A bookkeeping machine is a device that makes possible the production of several records by one operation (by means of carbon copies) because it has the following minimal features:

1. A movable carriage that can move to a pre-determined position or position as the result of some motorized operation.
2. A carriage-control mechanism that will permanently or temporarily stop the carriage at desired positions.
3. At least one memory register for collecting data.
4. A dating mechanism.
5. A reference numbering ability, so as to identify the work being done.
6. An adding and subtracting mechanism.
7. A front feed opening as well as the usual typewriter-like paper insertion ability.

An accounting machine is basically a large bookkeeping machine with additional features or abilities. Just where one leaves off and the other begins is difficult to say. The following features help to classify such machines as accounting:

1. Has several total registers, ranging from 3 on up.
2. Can distribute amounts to separate columns due to cross-footing ability, usually in 6 or more columns.
3. Is much more automatic than a bookkeeping machine in its operation:
   - a Usually subtotals and totals automatically, although this is not a vital distinction as some bookkeeping machines have this ability.
   - b Carriage returns automatically, although this too can be done by some bookkeeping machines.
   - c Tab control of carriage is done by temporary tab sets rather than permanent bar cuttings, although bookkeeping machines now come with this feature.
   - d Can count the number of operations performed in several places.
   - e Can accumulate grand totals, although some bookkeeping machines can accumulate at least one grand total.
   - f Can clear themselves automatically by the depression of a key after first clearing the carriage control dials.
   - g Carriage tab settings usually run to a dozen or more.
   - h Memory selection by depressing a button or key, to designate which memory unit a figure should be stored in.
   - i Carriage tab controls can make the machine add, subtract,

skip, return, subtotal, total, print in black, print in red, print but non-add, etc. Some of these things some bookkeeping machines can do but an accounting machine can do more than any bookkeeping machines.

Adding features to a machine costs money. Unless a machine can do more work and furnish valuable checking features as by-products of other operations, a point would soon be reached beyond which it would not pay to add more features. An accounting machine by doing extra jobs automatically makes the addition of these features pay off.

A simple bookkeeping machine has no ability to check the accuracy of its own postings, except as it can print out an amount which when compared to an earlier amount should agree if no error has been made. In an accounts receivable posting, the old balance is entered to which is added the new charge amount or the subtraction of a credit amount. After a sub-total is obtained indicating the new amount owed, the old balance is entered and subtracted and a total taken. If the old amount shown on the forms is not the same as the one originally entered, an error has been made. If the final total amount is not the same as the amount of charge or credit entered, an error also is indicated. This is as far as the machine can go. No comparison of an original grand total with a final grand total to see if an error has been made in any of the day's transactions is possible on a bookkeeping machine, usually. Only by adding up on an adding machine the sales debits and credit for that day's posting and comparing that total with an adding machine listing of all proof amounts can an error be detected, but this is done by the operator--not the machine. On an accounting machine grand totals for comparison purposes are automatically produced.

Where all sales are kept track of by cash registers, the need for pre-listing (adding up the sales slips on an adding machine) is done away with. Item counting to see if all sales slips were posted can be done on accounting machines, but seldom on bookkeeping machines.

Theoretically, there are two main types of bookkeeping and accounting machines:

1 Non-descriptive machines--those that do not have a typewriter attachment.
2 Descriptive--those that have a typewriter attached to the usual figuring and calculating machine mechanism.

To these two types of machines, some authors add a third--punched card accounting machines. These machines operate from punched cards and so do not properly fall into the classification of bookkeeping and accounting machines, but rather into a new class called Integrated Data Processing machines--which will be studied later.

As system machines, both bookkeeping and accounting machines place great emphasis on forms design. Not only does the type of data have to come to the machine, but it has to come on properly designed forms for easy and accurate posting to new forms. These new forms must have a common design purpose behind them, as one posting will usually, by carbons, transfer a figure or figures to a top form, a middle form, and a bottom form. If the design of these forms does not match exactly on all three, the figures will not be printed in the place or places desired.

The form design also must match exactly the set of the control tabs on the carriage control mechanism. Like a typewriter carriage during tabulation, the tabs must stop the carriage at the proper column so all figures in the column

can be added together for a total, automatically or otherwise. Usually all forms are designed first and the tab controls programmed second, but this is always done knowing the limitations of the machine to be used. An accounting machine with its many automatic features makes it possible for an operator to speed up the work being done, cut down on the errors he can possibly make (by doing some of the work automatically, by doing 3 or more printings at one time, etc.), and do the work more easily since he doesn't have to throw a carriage, figure out totals, etc. If the machine system and the work flow and form design systems match properly, a good system-machine relationship can be said to exist.

SABE IS YOUR BUSINESS

What Others Are Doing

October 23-25, 1961, Roosevelt Hotel, New York City. American Management Association's annual administrative services forum. One of three options is option 3, Data Processing Profits, How to Design & Use Computers & Information Systems Profitably. Wire or phone the AMA Registrar in NYC.

October 25-26, 1961, Morrison Hotel, Chicago, Illinois. 1961 computer applications symposium, sponsored by Armour Research Foundation of Illinois Institute of Technology. Contact B. Mittman, Program Chairman, at Armour Research Foundation in Chicago. Proceedings will be published.

October 25-27, 1961, Lafayette Hotel, Long Beach, California. 5th electronic business systems conference, National Machine Accountants Association--Western Division, P. O. Box 7365, Long Beach, California.

October 28, 1961, Hawthorne High School, Hawthorne, California. Teaching Machine Workshop, Los Angeles County Schools Teachers' Institute #75, two credits; program organized in conjunction with Los Angeles County Schools, Mrs. Dorothy Ford, Consultant in Business and Distributive Education; General Chairman, Mrs. Lucille Meyers, 3638 So. Carmona Avenue, Los Angeles 16, California. A tentative schedule, subject to change, is given below:

8:45 - 9:15 a.m.	Coffee and doughnuts	Hostess: Mrs. Meyers	Auditorium Lobby
9:15 - 9:30	Welcome to the school Invocation Introductions	Mr. Nyman, Principal Dr. Garner, Supt. Mrs. Corliss, Business Chairman	Auditorium
9:30 - 10:30	GENERAL SESSION	Dr. Evan Keislar and/ or Dr. Arthur Lumsdaine, UCLA	Auditorium
	Topic: "Teaching Machines and Programmed Learning" a broad scope of the teaching machines history and programmed materials		
10:45 - 11:45	EQUIPMENT DISPLAYS	Small group sessions 30 minutes in Cafeteria and 30 minutes in Laboratories Pick up colored cards at exit tables in Lobby	

Area #1 - TEACHING MACHINES OPEN HOUSE

1 Rheem Califone, Teaching Machine Demonstration, Model Didak 501
2 Corrigan and Associates, Teletest, Using television as a classroom teaching machine
3 Applied Communications, Videosonic Device
4 Systems Development Corporation, Programmed logic textbook and

research describing their project using teaching machine computers
5 Koncept-O-Graph Corporation, Teaching Machine demonstration, Model KOG 7
6 Western Design, Automated Tutor Machine, TutorTexts, Scrambled books
7 Grolier Inc., Teaching Materials Corporation, Teaching Machine TMI and programmed learning texts
8 Encyclopedia Brittanica Films, Programmed self-instruction materials

Area #2 - READING LABORATORY, Bldg. 14, Room 2
Chairman: Mr. Irwin Fields

1 Coast Visual Education, Tach- X, Controlled Reader, Skimmer, etc.
2 Allen Alperin Association, Perceptual Development Laboratory, Typing, Reading, and Key punch

Area #3 - FOREIGN LANGUAGE LABORATORY, Bldg. 4, Room 2
Chairman: Mr. Ray Garza

1 Master Control Consul demonstration
2 Individual student booths

12:00 - 12:30 Luncheon Cafeteria
12:30 - 1:30 Symposium Cafeteria
"Where Do We Go From Here?"
Future implications and evaluations of work completed in the Teaching Machine area and how it will affect education

Chairman: Dr. Miller, Minneapolis Honeywell Research Center
"What we don't know yet in this area"
Dr. Evan Keislar, UCLA
"How this affects education and the training of teachers"
Mr. Richard Morse, General Telephone, Santa Monica
"Using Programmed Learning in our Industrial Training Program"
Dr. Robert Corrigan, Corrigan and Associates
"Developing programs for schools and their production costs"
Mr. Harold Moon, INRAD
"Programming Techniques - step-by-step analysis"
1:30 - 2:00 Questions and answers from the floor
2:00 - 3:00 Open house

October 30-November 3, 1961, The American University, School of Government and Public Administration, Center for Technology and Administration. Eighth Institute on Electronics in Management. Write or phone Dr. Lowell H. Hattery, The American University, Washington 6, D. C. Topic for the Eighth Institute is: Current Developments in Automatic Data Processing Systems.

February 12-16, 1962, The American University. Fourth Institute on Information Storage and Retrieval.

May 1-3, 1962, San Francisco, California. 1962 Spring Joint Computer Conference. This Conference is the direct successor to the Western Joint Computer Conferences of previous years. The new name reflects the change in designation from local reference to time reference, and is correlated with the new sponsoring organization, the American Federation of Information Processing Societies (AFIPS).

May 14-25, 1962, The American University. Ninth Institute on Records Management.

AUTOMATION AND EDUCATION

Automated Teaching

This month SABE has contributions from Donald D. Bushnell, Center for Research in System Development, System Development Corporation, 2500 Colorado Avenue, Santa Monica, California, and from David J. Waterman, Instructor in Psychology, Modesto Junior College, Modesto, California.

Automation for Education
by Don Bushnell

Introductory Statement. New developments in educational technology portend increasing automation in the instructional process (as well as for business management and administration functions normally associated with school systems). Developments in automatic translating and abstracting systems, automated libraries, self-organizing teaching machines, and vast information retrieval systems will have a major effect on the educational processes within the next ten years.

It is the intent of these series of articles called "Automation for Education" to keep readers of the SABE DATA PROCESSOR cognizant of new innovations in educational technology, of future developments in computer technology which have significance for educational systems, and particularly of digital computer applications to the process of instruction. The scope and content of these articles are defined by automation as a means to education, not simply an aid or replacement for the teacher.

Teaching Machines and Electronic Data Processing - A Marriage of Convenience. Certain principles of learning, developed in psychological laboratories, have currently been applied with considerable success to the development of new self-instructional textbooks and teaching machines. These principles have been identified with an educational process called Programmed Learning.

One of the most important aspects of Programmed Learning is the record which the student leaves of his learning experience. For as students proceed through the instructional material, which is carefully prepared (or Programmed) in small, easy-to-take steps, he is required to actively respond at each step by filling in a missing word or selecting a multiple-choice answer designed to test his understanding of the information in that step. As the student writes down his answer to each step, he leaves an accurate and detailed record which provides a basis for revising the educational program so that it might teach better and more efficiently. The data left by students also provide a powerful tool for learning about human learning.

These records of students learning will be of interest to an entire school system. For counselors it will reveal individual student learning problems. Curriculum developers will have an effective tool for curriculum modification and evaluation. Instructors, of course, can get an up-to-the-minute account of each student's level of understanding of subject matter.

To retain and make use of the prodigious amount of data yielded by the programmed text or the teaching machine, schools will need the services of electronic data processing equipment. Short of a digital computer, which in fact would make the benefits of real-time analysis and display feasible, some method of automatically tabulating and storing records of student learning is needed. It is felt that the step-by-step record which learning programs provide may prove as powerful an observational instrument as the microscope or telescope, but without the aid of modern data processing equipment, the usefulness of this instrument will be eclipsed by mountains of unscored and unread program tapes.

Computers as Controllers of Teaching Machines. Computer controlled teaching machines are a relatively new development, and the literature in this area is limited. The work of Rath, Anderson, and Brainerd at IBM has been recognized as the pioneering attempt to simulate a teaching machine with a digital computer[1]. Reports from IBM indicate that the primary concern in this study was not to determine optimal criteria for alternative item sequences, but to investigate the basic feasibility of the digital computer for auto-instructional research.

The Automated Teaching Project at the System Development Corporation (SDC) in Santa Monica, California, has developed a teaching machine which can modify its item selection on the basis of various student response measures. This machine uses a Bendix G-15 computer for control, and an electric typewriter and random access slide projector for item display and other communication between student and computer. Several studies have been performed with this facility[2].

One investigation presently being conducted by SDC under a grant from the U. S. Office of Education used the Bendix-controlled teaching machine to select item sequences for students in high school geometry. The results of this study are intended to yield information on methods of applying different self-instructional materials to students of different motivational characteristics.

A new research facility, using a large capacity computer, the Philco 2000, will provide concurrent auto-instruction to many students. This facility, designated CLASS, is described in the current July-August edition of the AUDIO-VISUAL COMMUNICATION REVIEW[3].

Researchers at both the Radio Corporation of America[4] and the Massachusetts Institute of Technology have described plans to use computers for research in auto-instruction. In future months, it is possible that these projects will provide empirical data on the effectiveness of certain methods of sequencing educational materials in teaching machines.

At Bolt, Beranek and Newman, Incorporated, Cambridge, Massachusetts, a Digital Equipment Corporation PDP-1 computer is being used to teach the identification of non-verbal sounds[5]. Error rate and student preference have been used as criteria for sequence control.

This research will be brought up to date in the next edition of the SABE DATA PROCESSOR as the author will report on papers presented at a conference on Application of Digital Computers to Automated Instruction to be held in the early part of October in Washington, D. C.

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1 Rath, G. J.; Andersen, N. S.; and Brainerd, R. C. "The IBM Research Center Teaching Machine Project." AUTOMATIC TEACHING: THE STATE OF THE ART. (Editor: E. H. Galanter). New York: John Wiley and Sons, 1959. Ch. 11, pp. 117-130.

2 Coulson, J. and Silberman, H. F. "Automated Teaching and Individual Differences." AUDIO-VISUAL COMMUNICATION REVIEW (In Press).

3 Bushnell, Don D., and Cogswell, G. F. "A Computer-based Laboratory for Automation in School Systems." AUDIO-VISUAL COMMUNICATION REVIEW, Vol. 9, No. 4, July-August 1961.

4 Gavurin, E. I. and Donahue, V. M. "Logical Sequence and Random Sequence Teaching Machine Programs." TM 3088 (60-61), Radio Corporation of America, Burlington, Massachusetts, July 1960.

5 Bolt, Beranek and Newman, Inc. "An Application of a Computer to Automated Teaching." Paper submitted for presentation at the Western Joint Computer Conference, by W. E. Fletcher; E. Fredkin; and J. Swets, Dec. 1960.

Automated Teaching
by David J. Waterman, Jr.

A new journal, A I D, devoted to "auto-instructional devices," has made its appearance, and is devoted to articles dealing with new automatic teaching devices, reports of research grants, current research, a bibliography on publications and papers relevant to auto-instructional devices, as well as programs that are available from the various publishers. The address is: INRAD Educational and Training Methods Division, P. O. Box 4456, Lubbock, Texas. It is published monthly, with Harold L. Moon as Editor. The subscription rate is 50¢ per copy, $5 per year. The April 1961 issue of AID carries an interesting article by Dr. John Barlow, Emory University, called: "The Teacher and the Teaching Machine."

AUDIOVISUAL INSTRUCTION for April 1961 is devoted to teaching machines. Extra copies are available for 50¢ from Florence Fan, Department of Audio-Visual Instruction, National Education Association, 1201 Sixteenth Street, N. W., Washington 6, D. C.

Dr. A. A. Lumsdaine is now the editor of a new department in AUDIO-VISUAL COMMUNICATION REVIEW called "Teaching Machines and Auto-Instructional Programs." In the March-April 1961 issue he introduces his department with an article by David J. Klaus called "The Art of Auto-Instructional Programming."

Dr. Lumsdaine has been conducting a department in CONTEMPORARY PSYCHOLOGY for the past year or so, dealing with "Instructional Media." This journal is published by the American Psychological Association. The March, April, and May 1961 issues of CONTEMPORARY PSYCHOLOGY feature reviews of auto-instructional programs applicable to introductory courses in statistics, a review by Dr. Sidney Pressey of a filmstrip entitled "Teaching Machines," and a review of another filmstrip called "An Example of a Teaching Machine Program." These two filmstrips can be purchased from Basic Skill Films, 1355 Inverness Drive, Pasadena, California, at $6.75 each.

A report entitled PROGRAMMED LEARNING: EVOLVING PRINCIPLES AND INDUSTRIAL APPLICATIONS, is available from the Foundation for Research on Human Behavior, Ann Arbor, Michigan, $3.

Teaching Machines Corporation, 575 Lexington Avenue, NYC 22, offers free information on its courses in German, Spanish, Russian, English, elementary arithmetic, and algebra.

The Center for Programed Instruction, Inc., 365 West End Avenue at 77th Street, NYC, offers a free bulletin entitled "Programed Instruction," together with announcements of other materials available for sale.

A request to Encyclopedia Britannica Films, Inc., Wilmette, Illinois, will bring full information regarding the programmed learning materials available. Reports 1 and 2 are still available.

The new address of The American Institute for Research is No. 8, West 41st Avenue, San Mateo, California. Dr. Leslie J. Briggs is the director of the Instructional Methods Program.

THE AUTOMATED TEACHING BULLETIN, published four times a year by the Rheem Califone Corporation, 1020 North La Brea Avenue, Los Angeles 28, California, will be mailed free to interested individuals and institutions. The Spring 1961 issue contains a "Directory of Automated Teaching," a list of persons interested in and/or actively engaged in the field of automated teaching. If you will your name included, address the Editor, W. R. Deutsch.

A joint statement on Self-Instructional Materials and Devices by Committees of the American Education Research Association, the American Psychological Association, and the Department of Audio-Visual Instruction of the National Education Association, is found in the August 1961 issue of the AMERICAN PSYCHOLOGIST. The statement has been approved by the governing boards of the associations represented.

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